

United States Patent [19]

Greenspan

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[54] **STIMULATION OF ANTIGEN PRODUCTION BY *BORDETELLA PERTUSSIS***

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[56] **References Cited**

U.S. PATENT DOCUMENTS

2,240,969 5/1941 Voigt et al. 167/68
4,455,297 6/1984 Syukuda et al. 424/92

FOREIGN PATENT DOCUMENTS

0089245 9/1983 European Pat. Off. 424/85
3319714 12/1983 Fed. Rep. of Germany 435/68

OTHER PUBLICATIONS

Imaizumi et al., Abstracts of the 1982 ICAAC, p. 109,

Abstract 251, "A New Shaking Culture Method for the Production of Pertussis Component Vaccine . . .".

Arai et al., *Biochimica et Biophysica Acta*, Vo. 444, (1976), pp. 765-782, "Separation and Characterization of Two Distinct Hemagglutinins Contained in Purified Leukocytosis-Promoting Factor from JJ *Bordetella pertussis*".

Botre et al., *Chem. Abst.*, vol. 62, 1965, p. 966, "Influence of Polymers on *Penicillium chrysogenum* Fermentation".

Hewlett et al., *J. of Bact.*, vol. 127(2), Aug. 1976, pp. 890-898, "Soluble Adenylyl Cyclase from the Culture Medium of *Bordetella pertussis*: Purification and Characterization".

Cohen et al., *Amer. J. Public Health*, Apr. 1946, pp. 371-376, vol. 36, "Pertussis Vaccine Prepared with Phase-I Cultures Grown in Fluid Medium".

Botre et al., "Influenza di Alcuni Polimeri Nella Fermentazione del 'Penicillium Chrysogenum', *Farmaco. Ed. Pract.* 19, 507ff, (1964), (translated portions only).

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[57] **ABSTRACT**

A method for the elaboration of large quantities of *Bordetella pertussis* protective antigens useful in the production of acellular vaccines for prevention of whooping cough.

2 Claims, No Drawings